

Metal Progress

January-June 1977, Vol. 111, No. 1-6

SUBJECT INDEX

In the index listing, the first number indicates the issue number, the second number the page in that issue. For example, 1-5 indicates issue No. 1 (January), page 5; 2-38 indicates issue No. 2 (February), page 38, and so on. Index listing is for Vol. 111, January-June 1977.

Airframes

- Heat Treating Space Shuttle Parts to Fracture Toughness Specifications, by R. T. Ortiz 3-54
- Improved Aluminum Alloys for Airframe Applications, by Michael V. Hyatt, William E. Quist, and James T. Quinlivan 3-56
- Selecting Processing Options for High-Fracture Toughness Titanium Airframe Forgings, by George W. Kuhlman and Fred R. Billman 3-38

Alloy steels

- Effect of Boron on the Isothermal Transformation and Hardenability of 8620 and 8650 Steels 5-64

Aluminum and aluminum alloys

- Improved Aluminum Alloys for Airframe Applications, by Michael V. Hyatt, William E. Quist, and James T. Quinlivan 3-56
- Innovation in Powder Metallurgy: An Engine Bearing Material, by Michael L. MacKay 6-32
- Recommended Minimum Bend Radii for 90° Cold Forming of Aluminum Sheet and Plate 1-71
- Trends in nonferrous Metals — Technology Forecast '77 1-34

Automotive parts

- Another Way to Pare Weight: Reinforced Plastic Doors, by Harry E. Chandler 6-36
- From Porsche, a New Slant on Energy Conservation, by H. Burst, M. Grahle, and C. Schneider 6-38
- Innovation in Powder Metallurgy: An Engine Bearing Material, by Michael L. MacKay 6-32
- Selection Guide for Automotive Spring Wire and Springs 6-56

Brazing

- Solving Fabrication Problems With Precision Furnace Brazing, by Robert G. Fairbanks 4-60
- Standard Brazing Alloys 4-64

Carbon steel

- The Machete, by Paul M. Unterweiser 4-58

Selection Guide for Automotive Spring Wire and Springs

- An Underused Concept, by Harry E. Chandler 5-5

ASM's Technical Priorities: Responding to Industry Challenges

- by Allen G. Gray 4-22

Cooperation in Materials Development Holds Key to Auto Weight Reduction

- by Allen G. Gray 6-25

Cost Fighting Today

- by Harry E. Chandler 6-5

Do Something . . . Now

- by Harry E. Chandler 3-5

Plan Now to Cope With Shortages

- by Allen G. Gray 1-27

Product Liability

- by Harry E. Chandler 1-5

Reliability: A Must for Chemical Processing Equipment

- by Allen G. Gray 2-29

Strategy for Energy Survival

- by Allen G. Gray 5-29

Technological Overachievers

- by Harry E. Chandler 4-5

Energy conservation

From Porsche, a New Slant on Energy Conservation

- by H. Burst, M. Grahle, and C. Schneider 6-38

Managing Energy in Heat Treating and Heat Processing

- by Harry E. Chandler 5-32

Fatigue

Fractographic Analysis Aids Fatigue Crack Studies

- by Benjamin K. Young Jr. and Harry D. Allen 3-63

Finishing

Trends in Cleaning, Finishing, Coating — Technology Forecast '77

- 1-46

Cleaning

Trends in Cleaning, Finishing, Coating — Technology Forecast '77

- 1-46

Coatings

Trends in Plastics, Composites, Ceramics — Technology Forecast '77

- 1-42

Corrosion resistance

Corrosion Resistance of Selected Metals and Nonmetals

- 2-59

From Porsche, a New Slant on Energy Conservation

- by H. Burst, M. Grahle, and C. Schneider 6-38

Innovation in Powder Metallurgy:

An Engine Bearing Material

- by Michael L. MacKay 6-32

Preventing Corrosion Failures in Chemical Processing Equipment

- by George B. Elder 4-44

Titanium Solves Corrosion Problems in Petroleum Processing

- by Loren C. Covington 2-38

in Petroleum Processing

- by Loren C. Covington 2-38

Trends in Forming — Technology Forecast '77

- 1-50

Forming

Fabricating Titanium Parts With the SPF/DB Process

- by Edward D. Weisert and George W. Stacher 3-32

How Cameron Vertically Extrudes

- Seamless Pipe

- by Dan Avery 2-52

Recommended Minimum Bend Radii for 90° Cold Forming of Aluminum

- Sheet and Plate 1-71

Trends in Forming — Technology Forecast '77

- 1-50

Fracture toughness

Fractographic Analysis Aids Fatigue

- Crack Studies

- by Benjamin K. Young Jr. and Harry D. Allen 3-63

Heat Treating Space Shuttle Parts to Fracture Toughness Specifications

- by R. T. Ortiz 3-54

Metal Progress

January-June 1977, Vol. 111, No. 1-6

SUBJECT INDEX

In the index listing, the first number indicates the issue number, the second number the page in that issue. For example, 1-5 indicates issue No. 1 (January), page 5; 2-38 indicates issue No. 2 (February), page 38, and so on. Index listing is for Vol. 111, January-June 1977.

Airframes

- Heat Treating Space Shuttle Parts to Fracture Toughness Specifications, by R. T. Ortiz 3-54
- Improved Aluminum Alloys for Airframe Applications, by Michael V. Hyatt, William E. Quist, and James T. Quinlivan 3-56
- Selecting Processing Options for High-Fracture Toughness Titanium Airframe Forgings, by George W. Kuhlman and Fred R. Billman 3-38

Alloy steels

- Effect of Boron on the Isothermal Transformation and Hardenability of 8620 and 8650 Steels 5-64

Aluminum and aluminum alloys

- Improved Aluminum Alloys for Airframe Applications, by Michael V. Hyatt, William E. Quist, and James T. Quinlivan 3-56
- Innovation in Powder Metallurgy: An Engine Bearing Material, by Michael L. MacKay 6-32
- Recommended Minimum Bend Radii for 90° Cold Forming of Aluminum Sheet and Plate 1-71
- Trends in nonferrous Metals — Technology Forecast '77 1-34

Automotive parts

- Another Way to Pare Weight: Reinforced Plastic Doors, by Harry E. Chandler 6-36
- From Porsche, a New Slant on Energy Conservation, by H. Burst, M. Grahle, and C. Schneider 6-38
- Innovation in Powder Metallurgy: An Engine Bearing Material, by Michael L. MacKay 6-32
- Selection Guide for Automotive Spring Wire and Springs 6-56

Brazing

- Solving Fabrication Problems With Precision Furnace Brazing, by Robert G. Fairbanks 4-60
- Standard Brazing Alloys 4-64

Carbon steel

- The Machete, by Paul M. Unterweiser 4-58

Selection Guide for Automotive Spring Wire and Springs

- An Underused Concept, by Harry E. Chandler 5-5

ASM's Technical Priorities: Responding to Industry Challenges

- by Allen G. Gray 4-22

Cooperation in Materials Development Holds Key to Auto Weight Reduction

- by Allen G. Gray 6-25

Cost Fighting Today

- by Harry E. Chandler 6-5

Do Something . . . Now

- by Harry E. Chandler 3-5

Plan Now to Cope With Shortages

- by Allen G. Gray 1-27

Product Liability

- by Harry E. Chandler 1-5

Reliability: A Must for Chemical Processing Equipment

- by Allen G. Gray 2-29

Strategy for Energy Survival

- by Allen G. Gray 5-29

Technological Overachievers

- by Harry E. Chandler 4-5

Energy conservation

From Porsche, a New Slant on Energy Conservation

- by H. Burst, M. Grahle, and C. Schneider 6-38

Managing Energy in Heat Treating and Heat Processing

- by Harry E. Chandler 5-32

Fatigue

Fractographic Analysis Aids Fatigue Crack Studies

- by Benjamin K. Young Jr. and Harry D. Allen 3-63

Finishing

Trends in Cleaning, Finishing, Coating — Technology Forecast '77

- 1-46

Cleaning

Trends in Cleaning, Finishing, Coating

- Technology Forecast '77 1-46

Coating

Trends in Cleaning, Finishing, Coating

- Technology Forecast '77 1-46

Composites

Trends in Plastics, Composites, Ceramics

- Technology Forecast '77 1-42

Technology Forecast '77

- 1-42

Corrosion resistance

Trends in Plastics, Composites, Ceramics

- Technology Forecast '77 2-59

Technology Forecast '77

- 2-59

From Porsche, a New Slant on Energy Conservation

- by H. Burst, M. Grahle, and C. Schneider 6-38

Innovation in Powder Metallurgy: An Engine Bearing Material

- by Michael L. MacKay 6-32

Preventing Corrosion Failures in Chemical Processing Equipment

- by George B. Elder 4-44

Titanium Solves Corrosion Problems in Petroleum Processing

- by Loren C. Covington 2-38

Trends in Forming — Technology Forecast '77

- 1-50

Technology Forecast '77

<li

| | | | | | |
|---|------|--|------|--|------|
| Selecting Processing Options for High-Fracture Toughness Titanium Airframe Forgings, by George W. Kuhlman and Fred R. Billman | 3-38 | Trends in Plastics, Composites, Ceramics — Technology Forecast '77 | 1-42 | Technology forecast Technology Forecast '77 | 1-31 |
| Hardenability | | Powder metallurgy | | Testing | |
| Effect of Boron on the Isothermal Transformation and Hardenability of 8620 and 8650 Steels | 5-64 | Innovation in Powder Metallurgy: An Engine Bearing Material, by Michael L. MacKay | 6-32 | Trends in Testing and Inspection — Technology Forecast '77 | 1-57 |
| How Steel Plant Applies Calculated Hardenabilities, by Robert H. Cobbett | 5-35 | Trends in Powder Metallurgy — Technology Forecast '77 | 1-58 | | |
| Heat processing | | Profiles | | Titanium | |
| Managing Energy in Heat Treating and Heat Processing, by Harry E. Chandler | 5-32 | Bob Quinlan: Metallurgist-Sales Executive, by Harry E. Chandler | 5-48 | Fabricating Titanium Parts With the SPF/DB Process, by Edward D. Weisert and George W. Stacher | 3-32 |
| Trends in Heat Processing — Technology Forecast '77 | 1-44 | Paul S. Gupton: Monsanto Fellow, by Harry E. Chandler | 2-46 | Selecting Processing Options for High-Toughness Titanium Airframe Forgings, by George W. Kuhlman and Fred R. Billman | 3-38 |
| Heat treatment | | Spacecraft | | Titanium Solves Corrosion Problems in Petroleum Processing, by Loren C. Covington | 2-38 |
| Heat Treating Space Shuttle Parts to Fracture Toughness Specifications, by R. T. Ortiz | 3-54 | Heat Treating Space Shuttle Parts to Fracture Toughness Specifications, by R. T. Ortiz | 3-54 | Trends in Nonferrous Metals — Technology Forecast '77 | 1-34 |
| Laser Hardening at Saginaw Steering Gear, by Jon E. Miller and James A. Wineman | 5-38 | Stainless steels | | | |
| Managing Energy in Heat Treating and Heat Processing, by Harry E. Chandler | 5-32 | Precipitation-Hardening Stainless Steels | 3-66 | Welding | |
| High-strength steels | | Solving Process Industry Problems With Specialty Stainlesses, by Eugene D. Montrose | 2-32 | Fabricating Titanium Parts With the SPF/DB Process, by Edward D. Weisert and George W. Stacher | 3-32 |
| Submerged-Arc Welding of HSLA Steels for Low-Temperature Service, by R. David Thomas | 4-30 | Steels | | Submerged-Arc Welding of HSLA Steels for Low-Temperature Service, by R. David Thomas | 4-30 |
| Weldability of HSLA Structural Steels, by A. B. Rothwell | 6-43 | Effect of Boron on the Isothermal Transformation and Hardenability of 8620 and 8650 Steels | 5-64 | Trends in Welding and Joining — Technology Forecast '77 | 1-55 |
| Inspection | | From Porsche, a New Slant on Energy Conservation, by H. Burst, M. Grahle, and C. Schneider | 6-38 | Weldability of HSLA Structural Steels, by A. B. Rothwell | 6-43 |
| Trends in Testing and Inspection — Technology Forecast '77 | 1-57 | Heat Treating Space Shuttle Parts to Fracture Toughness Specifications, by R. T. Ortiz | 3-54 | | |
| Joining | | How Steel Plant Applies Calculated Hardenabilities, by Robert H. Cobbett | 5-35 | | |
| Trends in Welding and Joining — Technology Forecast '77 | 1-55 | Selection Guide for Automotive Spring Wire and Springs | 6-56 | | |
| Materials engineering | | Submerged-Arc Welding of HSLA Steels for Low-Temperature Service, by R. David Thomas | 4-30 | | |
| Computer-Aided Engineering at Deere: A Materials Selection-Data System, by Paul M. Unterweiser | 4-38 | The Machete, by Paul M. Unterweiser | 4-58 | | |
| Materials systems | | Trends in Steels — Technology Forecast '77 | 1-31 | | |
| The Machete, by Paul M. Unterweiser | 4-58 | Weldability of HSLA Structural Steels, by A. B. Rothwell | 6-43 | | |
| Pipe | | Submerged-arc welding | | | |
| How Cameron Vertically Extrudes Seamless Pipe, by Dan Avery | 2-52 | Submerged-Arc Welding of HSLA Steels for Low-Temperature Service, by R. David Thomas | 4-30 | | |
| Roll Extruding Precision Seamless Pipe and Tubing, by David L. Corn | 6-28 | Superalloys | | | |
| Plastics | | Trends in Superalloys — Technology Forecast '77 | 1-39 | | |
| Another Way to Pare Weight: Reinforced Plastic Doors by Harry E. Chandler | 6-36 | Superplasticity | | | |
| | | Fabricating Titanium Parts With the SPF/DB Process, by Edward D. Weisert and George W. Stacher | 3-32 | | |

AUTHOR INDEX

| | |
|-----------------------------|--|
| Allen, Harry D. | 3-63 |
| Avery, Dan | 2-52 |
| Billman, Fred R. | 3-38 |
| Burst, H. | 6-38 |
| Chandler, Harry E. | 1-5, 2-5, 2-46, 3-5, 4-5, 5-5, 5-32, 5-48, 6-5, 6-36 |
| Cobbett, Robert H. | 5-35 |
| Corn, David L. | 6-28 |
| Covington, Loren C. | 2-38 |
| Doelker, William J. | 5-50 |
| Elder, George B. | 4-44 |
| Fairbanks, Robert G. | 4-60 |
| Grahle, M. | 6-38 |
| Gray, Allen G. | 1-27, 2-29, 3-29, 4-22, 5-29, 6-25 |
| Hyatt, Michael V. | 3-56 |
| Kuhlman, George W. | 3-38 |
| MacKay, Michael L. | 6-32 |
| Miller, Jon E. | 5-38 |
| Montrone, Eugene D. | 2-32 |
| Ortiz, R. T. | 3-54 |
| Quinlivan, James T. | 3-56 |
| Quist, William E. | 3-56 |
| Rothwell, A. B. | 6-43 |
| Schneider, C. | 6-38 |
| Stacher, George W. | 3-32 |
| Thomas Jr., R. David | 4-30 |
| Unterweiser, Paul M. | 4-38, 4-58 |
| Weisert, Edward D. | 3-32 |
| Wineman, James A. | 5-38 |
| Young Jr., Benjamin K. | 3-63 |

Metal Progress

Mid-June - December 1977, Vol. 112, No. 1-8

SUBJECT INDEX

In the index listing, the first number indicates the issue number, the second number the page in that issue. For example, 1-26 indicates issue No. 1 (Databook), page 26; 2-30 indicates issue No. 2 (July), page 30, and so on. Issue No. 7 (Heat Treating Buyers Guide and Directory) is not indexed. Index listing is for Vol. 112, Mid-June - December 1977.

Aerospace

HIP'ing Raises Casting Performance Levels, by William R. Freeman Jr. 3-33

Aircraft

A Close Look at 7475 and 2024 Aluminum for Aircraft Structures, by Jerold M. Van Orden and Donald E. Pettit 8-28

Alloy steels

Compositions of Former Standard SAE Carbon and Alloy Steels 1-26
Cooling Transformation Diagrams for AISI 4140 1-116
Effect of Boron on the Isothermal Transformation and Hardenability of 8620 and 8650 Steels 1-58
Effects of High-Temperature Austenitizing on AISI 8620, by James Conybear and Wallace J. Titus 6-61
Guide to ASTM Specifications for Pressure Vessel Forging Steels 1-40
High-Frequency Welding of HSLA Steel Structural, by Humfrey N. Udall and John T. Berry 3-27
Low-Temperature Impact Properties of Selected Quenched and Tempered Alloy Steels 1-36
Machining Ultrahigh-Strength Alloys 1-183
Materials for Direct Combustion Fluidized-Bed Steam Generators, by John E. Mesko 2-30
Properties and Applications of Carbon and Low-Alloy Steel Castings 1-38
Properties and Applications of Corrosion Resistant Stainless and High-Alloy Steel Castings 1-49
Properties of Alloys for Low-Temperature and Cryogenic Service 1-92
Properties of Selected Carbon and Alloy Steels 1-33
Recommended Temperature and Time Cycles for Annealing Alloy Steels 1-113
SAE Alloy Steel Compositions 1-18
Selecting Arc Welding Electrodes for Mild and Low-Alloy Steels 1-163
Selection of Steel for Economy of Manufacture ... And/Or, by Harry E. Chandler 5-38
The EX Steels and Equivalent Standard Grades 1-25

Typical Compositions, Characteristics, and Uses of Representative Ultrahigh-Strength Steels 1-56

Aluminum and aluminum alloys

A Close Look at 7475 and 2024 Aluminum for Aircraft Structures, by Jerold M. Van Orden and Donald E. Pettit 8-28
Compositions, Characteristics, Properties, and Typical Applications of Aluminum Sand and Permanent Mold Casting Alloys 1-76
Fatigue Performance of Aluminum Die Forgings for Trucks, By Neal L. Person 8-51
Heat Treatment for Wrought Aluminum Alloys 1-125
Metallography of Aluminum and Aluminum Alloys 1-141
More Aluminum in Autos, by Donald F. Baxter Jr. 8-32
Properties and Applications of Nonferrous Powder Metal Parts 1-70
Properties and Applications of Wrought Aluminum Alloys 1-73
Properties of Alloys for Low-Temperature and Cryogenic Service 1-92
Recommended Minimum Bend Radii for 90° Cold Forming of Aluminum Sheet and Plate 1-178
Temper Designations for Aluminum Alloys 1-75

Atmospheres

Exothermic and Endothermic Furnace Atmospheres 1-121

Automotive engineering

More Aluminum in Autos, by Donald F. Baxter Jr. 8-32

Bearings

Improved Bearings at Lower Cost via Powder Metallurgy, by John S. Adams and Douglas Glover 3-39

Boilers

Materials for Boiler and Nuclear Reactor Vessels 2-52

Materials for Direct Combustion Fluidized-Bed Steam Generators, by John E. Mesko 2-30

Brazing

Standard Brazing Alloys: Compositions, Characteristics, Uses 1-170

Carbon Steels

AISI-SAE Standard Carbon Steels 1-17
Compositions of Former Standard SAE Carbon and Alloy Steels 1-26
Expected Minimum Mechanical Properties, Conventional Practice, of Cold-Drawn Carbon Steel Rounds, Squares, and Hexagons 1-31
Guide to ASTM Specifications for Pressure Vessel Forging Steels 1-40
Machinability Ratings for Cold-Drawn, Carbon-Steel Bars 1-181
Properties and Applications of Carbon and Low-Alloy Steel Castings 1-38
Properties of Selected Carbon and Alloy Steels 1-33
Selection of Steels for Economy of Manufacture ... And/Or, by Harry E. Chandler 5-38
Typical Imperfections in Carbon Steel Strip 1-174

Casting alloys

A Continuous Casting Process for Cobalt Hardfacing Weld Rod, by John B. Gullon 6-51
Compositions, Characteristics, Properties and Typical Applications of Aluminum Sand and Permanent Mold Casting Alloys 1-76
Compositions, Properties, and Applications of Magnesium Alloys 1-79
Constitution Diagrams for Stainless Steel Castings 1-51
HIP'ing Raises Casting Performance Levels, by William R. Freeman Jr. 3-33
Metallurgical Factors Affecting Wear Resistance of Metals, by K. J. Bhansali and W. L. Silence 6-38
Properties and Applications of Carbon and Low-Alloy Steel Castings 1-38
Properties and Applications of Cast Copper and Copper Alloys 1-80
Properties and Applications of Corrosion Resistant Stainless and High-Alloy Steel Castings 1-49
Properties, Applications, and Cutting Conditions for Malleable Iron Castings 1-62
Quality Control at AiResearch Casting Co., by Harold E. Simmons 4-38
Specifications and Properties of Ductile (Nodular) Iron Castings 1-60

Ceramics

Thermal, Mechanical, and Electrical Properties of Typical High-Alumina Ceramics 1-98

| | |
|--|-------|
| Chemical analysis | |
| Selecting Chemical Analysis Methods, by Vernon Coutu and David Krashes | 4-35 |
| Cleaning | |
| Troubleshooting Checklist for Phosphating Systems | 1-158 |
| Coatings | |
| Selection Guide to Coil-Coated Finishes | 1-154 |
| Selection of Steels for Economy of Manufacture ... And/Or, by Harry E. Chandler | 5-38 |
| Cobalt alloys | |
| A Continuous Casting Process for Cobalt Hardfacing Weld Rod, by John B. Gullon | 6-51 |
| Guide to Selection of Superalloys | 1-90 |
| Metallurgical Factors Affecting Wear Resistance of Metals, by K. J. Bhansali and W. L. Silence | 6-38 |
| Columbium alloys | |
| Composition and Properties of Representative Refractory Metal Alloys | 1-97 |
| Copper and copper alloys | |
| Properties and Applications of Cast Copper and Copper Alloys | 1-80 |
| Properties and Applications of Nonferrous Powder Metal Parts | 1-67 |
| Corrosion resistance | |
| Materials for Direct Combustion Fluidized-Bed Steam Generators, by John E. Mesko | 2-30 |
| Properties and Applications of Corrosion Resistant Stainless and High-Alloy Steel Castings | 1-49 |
| Report on Corrosion and Erosion of High Btu Gasifier Components, by A. J. Mac Nab | 6-44 |
| Cutting | |
| Properties, Applications, and Cutting Conditions for Malleable Iron Castings | 1-62 |
| Editorial | |
| An Energy Insurance Policy, by Allen G. Gray | 2-21 |
| Another Shortage?, by Harry E. Chandler | 2-5 |
| Assessing Needs for Critical Materials, by Allen G. Gray | 3-23 |
| Fixing Something That Doesn't Need Fixing, by Allen G. Gray | 4-29 |
| Identifying a Need, by Harry E. Chandler | 4-5 |
| Knowing What's Available, by Harry E. Chandler | 5-5 |
| Materials Hold Key to Progress, by Allen G. Gray | 8-27 |
| Obligation to Inform, by Harry E. Chandler | 3-5 |
| On Being Believable, by Harry E. Chandler | 8-5 |
| Panacea Peddlers, by Harry E. Chandler | 6-5 |
| Users and Producers Must Share Steel's Challenges, by Allen G. Gray | 5-35 |
| Wear Control Takes on New Significance, by Allen G. Gray | 6-29 |
| Harderability | |
| Calculating Hardenability Curves From Chemical Composition | 1-115 |
| Effect of Boron on the Isothermal Transformation and Hardenability of 8620 and 8650 Steels | 1-58 |
| Heat treatment | |
| Cooling Transformation Diagram for AISI 4140 | 1-116 |
| Effects of High-Temperature Austenitizing on AISI 8620, by James Conybear and Wallace J. Titus | 6-61 |
| Exothermic and Endothermic Furnace Atmospheres | 1-121 |
| Heat Treatment for Wrought Aluminum Alloys | 1-125 |
| Iron-Carbon Equilibrium Diagram | 1-111 |
| Optimizing Tempering Time for High-Speed Steels, by Bjorn Fredriksson | 3-50 |
| Recommended Temperatures and Time Cycles for Annealing Alloy Steels | 1-113 |
| Surface Hardening of Steel by Induction | 1-123 |
| Temper Designations for Aluminum Alloys | 1-75 |
| Embrittlement | |
| Radiation Embrittlement of Nuclear Reactor Pressure Vessels, by Theodore U. Marston | 2-25 |
| Fatigue | |
| A Close Look at 7475 and 2024 Aluminum for Aircraft Structures, by Jerold M. Van Orden and Donald E. Pettit | 8-28 |
| Fatigue Performance of Aluminum Die Forgings for Trucks, by Neal L. Person | 8-51 |
| Finishing | |
| Selection Guide to Coil-Coated Finishes | 1-154 |
| Forgings | |
| Fatigue Performance of Aluminum Die Forgings for Trucks, by Neal L. Person | 8-51 |
| Guide to ASTM Specifications for Pressure Vessel Forging Steels | 1-40 |
| Improved Bearings at Lower Cost via Powder Metallurgy, by John S. Adams and Douglas Glover | 3-39 |
| Quality Control of Critical Forgings at Wyman-Gordon, by James Pulaski | 4-32 |
| Forming | |
| GM Develops a Superformable HSLA Steel, by Donald F. Baxter Jr. | 3-44 |
| Recommended Minimum Bend Radii for 90° Cold Forming of Aluminum Sheet and Plate | 1-178 |
| Typical Imperfections in Carbon Steel Strip | 1-174 |
| Fracture toughness | |
| A New Cost-Effective Titanium Alloy With High Fracture Toughness, by R.G. Berryman, J.C. Chesnutt and F.H. Froes | 8-40 |
| Radiation Embrittlement of Nuclear Reactor Pressure Vessels, by Theodore U. Marston | 2-25 |
| Iron | |
| Hardness Conversion Tables | 1-138 |
| Iron-Carbon Equilibrium Diagrams | 1-111 |
| Metallurgical Factors Affecting Wear Resistance of Metals, by K.J. Bhansali and W.L. Silence | 6-38 |
| Properties and Applications of Ferrous Powder Metal Parts | 1-64 |
| Properties, Applications, and Cutting Conditions for Malleable Iron Castings | 1-62 |
| Specifications and Properties of Ductile (Nodular) Iron Castings | 1-60 |
| Machining | |
| Guide for Machining Standard AISI Stainless Steels in Automatic Equipment | 1-182 |
| Machinability Ratings for Cold-Drawn, Carbon-Steel Bars | 1-181 |
| Machining Ultrahigh Strength Alloys | 1-183 |

METAL PROGRESS SUBJECT INDEX

| | | |
|--|---|--|
| Magnesium alloys | Pipe | Quality Control at AiResearch Casting Co., by Harold E. Simmons 4-38 |
| Composition, Properties, and Applications of Magnesium Alloys . . 1-79 | Controlling Sources of Variability in Stainless Steel Piping, by Richard E. Smith 2-42 | Quality Control of Critical Forgings at Wyman-Gordon, by James Pulaski 4-32 |
| Materials availability | Plastics | Selecting Chemical Analysis Methods, by Vernon Coutu and David Krashes 4-35 |
| Planet Earth's Metal Resources, by Abraham Hurlich 5-H1 | Typical Mechanical and Physical Properties of Engineering Plastics . . 1-104 | |
| Materials engineering | Powder metal parts | Stainless steels |
| Materials Engineering for Valves, by Harry Schwartzbart and William C. Banks 6-66 | Improved Bearings at Lower Cost via Powder Metallurgy, by John S. Adams and Douglas Glover 3-39 | Composition and Mechanical Property Requirements for Covered Stainless Steel Electrodes 1-166 |
| Materials selection | Properties and Applications of Ferrous Powder Metal Parts 1-64 | Constitution Diagrams for Stainless Steel Castings 1-51 |
| Selection of Steels for Economy of Manufacture ... And/Or, by Harry E. Chandler 5-38 | Properties and Applications of Nonferrous Powder Metal Parts 1-67 | Constitution Diagrams for Stainless Steel Weld Metal 1-161 |
| Materials systems | Precious metals | Controlling Sources of Variability in Stainless Steel Piping, by Richard E. Smith 2-42 |
| The Handsaw, by Howard E. Boyer 6-36 | Properties of the Noble Metals 1-94 | Guide for Machining Standard AISI Stainless Steels in Automatic Equipment 1-182 |
| Metallography | Pressure vessels | Materials for Direct Combustion Fluidized-Bed Steam Generators, by John E. Mesko 2-30 |
| Color Metallography as a Diagnostic Tool, by Hugh Baker 4-52 | Guide to ASTM Specifications for Pressure Vessel Forging Steels 1-40 | Properties and Applications of Corrosion Resistant Stainless and High-Alloy Steel Castings 1-49 |
| Geometry of Microstructure - Part I, by Frederick N. Rhines 3-60 | Materials for Boilers and Nuclear Reactor Vessels 2-52 | Properties and Applications of Special Stainless Steels 1-51 |
| Geometry of Microstructure - Part II, by Frederick N. Rhines 4-47 | Materials of Construction for a Typical Boiling Water Nuclear Reactor 3-43 | Properties of Alloys for Low-Temperature and Cryogenic Service 1-92 |
| Metallographic Techniques for Hard-to-Handle Materials, by James A. Nelson 4-57 | Radiation Embrittlement of Nuclear Reactor Pressure Vessels, by Theodore U. Marston 2-25 | Selection of Steels for Economy of Manufacture ... And/Or, by Harry E. Chandler 5-38 |
| Metallography of Aluminum and Aluminum Alloys 1-141 | Report on Corrosion and Erosion of High Btu Gasifier Components, by A.J. Mac Nab 6-44 | Typical Compositions, Characteristics, and Uses of Representative Ultrahigh-Strength Steels 1-56 |
| Molybdenum alloys | Profile | Steels |
| Composition and Properties of Representative Refractory Metal Alloys 1-97 | Bill Smith: Leader in Nuclear Power Metallurgy, Welding, by Harry E. Chandler 2-40 | AISI-SAE Standard Carbon Steels . . 1-17 |
| Nickel alloys | Meet ASM's New President — Nicholas P. Milano, by J. D. Graham 8-56 | Classification and Selection of Tool Steels 1-53 |
| A Continuous Casting Process for Cobalt Hardfacing Weld Rod, by John B. Gullon 6-51 | Refractory metals | Composition and Mechanical Property Requirements for Covered Stainless Steel Electrodes 1-166 |
| Guide to Selection of Superalloys .. 1-86 | Composition and Properties of Representative Refractory Metal Alloys 1-97 | Compositions of Former Standard SAE Carbon and Alloy Steels 1-26 |
| Nuclear reactors | Reliability | Constitution Diagrams for Stainless Steel Castings 1-51 |
| Controlling Sources of Variability in Stainless Steel Piping, by Richard E. Smith 2-42 | Controlling Sources of Variability in Stainless Steel Piping, by Richard E. Smith 2-42 | Constitution Diagram for Stainless Steel Weld Metal 1-161 |
| Materials for Boilers and Nuclear Reactor Vessels 2-52 | How Stoody Conducts Internal Quality Control Assurance Audits, by Elton N. Rockwell 4-61 | Controlling Sources of Variability in Stainless Steel Piping, by Richard E. Smith 2-42 |
| Materials of Construction for a Typical Boiling Water Nuclear Reactor 3-43 | Optimizing NDI Sensitivity, by Duane P. Johnson 4-64 | Effect of Boron on the Isothermal Transformation and Hardenability of 8620 and 8650 Steels 1-58 |
| Radiation Embrittlement of Nuclear Reactor Pressure Vessels, by Theodore U. Marston 2-25 | Products Liability and the Engineer, by Donald Peckner 4-42 | Effects of High-Temperature Austenitizing on AISI 8620, by James Conybear and Wallace J. Titus 6-61 |
| | | Expected Minimum Mechanical Properties, Conventional Practice, of Cold-Drawn Carbon Steel Rounds, Squares, and Hexagons 1-31 |
| | | GM Develops a Superformable HSLA Steel, by Donald F. Baxter Jr. 3-44 |

| | |
|--|-------|
| Guide for Machining Standard AISI Stainless Steels in Automatic Equipment | 1-182 |
| Guide to ASTM Specifications for Pressure Vessel Forging Steels | 1-40 |
| Hardness Conversion Tables | 1-138 |
| High-Frequency Welding of HSLA Steel Structural, by Humfrey N. Udall and John T. Berry | 3-27 |
| Iron-Carbon Equilibrium Diagrams | 1-111 |
| Low-Temperature Impact Properties of Selected Quenched and Tempered Alloy Steels | 1-36 |
| Machinability Ratings for Cold-Drawn Carbon-Steel Bars | 1-181 |
| Machining Ultrahigh Strength Alloys | 1-183 |
| Optimizing Tempering Time for High-Speed Steels, by Bjorn Fredriksson | 3-50 |
| Properties and Applications of Carbon and Low-Alloy Steel Castings | 1-38 |
| Properties and Applications of Corrosion Resistant Stainless and High-Alloy Steel Castings | 1-49 |
| Resistant Stainless and High-Alloy Steel Castings | 1-49 |
| Properties and Applications of Ferrous Powder Metal Parts | 1-64 |
| Properties and Applications of Special Stainless Steels | 1-44 |
| Properties of Selected Carbon and Alloy Steels | 1-33 |
| Report on Corrosion and Erosion of High Btu Gasifier Components, by A.J. Mac Nab | 6-44 |
| Selecting Arc Welding Electrodes for Mild and Low-Alloy Steels | 1-163 |
| Surface Hardening of Steel by Induction | 1-123 |
| SAE Alloy Steel Compositions | 1-18 |
| Selection of Steels for Economy of Manufacture ... And/Or, by Harry E. Chandler | 5-38 |
| The EX Steels and Equivalent Standard Grades | 1-25 |
| Typical Compositions, Characteristics, and Uses of Representative Ultrahigh-Strength Steels | 1-56 |
| Typical Imperfections in Carbon Steel Strip | 1-174 |
| Structural steel | |
| High-Frequency Welding of HSLA Steel Structural, by Humfrey N. Udall and John T. Berry | 1-27 |
| Superalloys | |
| Guide to Selection of Superalloys | 1-86 |
| Properties of Alloys for Low-Temperature and Cryogenic Service | 1-92 |
| Surfacing | |
| A Continuous Casting Process for Cobalt Hardfacing Weld Rod, by John B. Gullon | 6-51 |
| Iron-Chromium-Carbon Hardfacing With the Bulkweld Process, by R. F. Arnoldy and G. H. Reynolds | 1-31 |
| Typical Compositions of Hardfacing Alloys | 6-49 |
| Tantalum alloys | |
| Composition and Properties of Representative Refractory Metal Alloys | 1-97 |
| Testing and inspection | |
| Color Metallography as a Diagnostic Tool, by Hugh Baker | 4-52 |
| Common Units for Converting From the English to Metric (SI) System | 1-150 |
| English/Metric (SI) Stress Conversion Factors | 1-152 |
| Hardness Conversion Tables | 1-138 |
| Metallographic Techniques for Hard-to-Handle Materials, by James A. Nelson | 4-57 |
| Metallography of Aluminum and Aluminum Alloys | 1-141 |
| Nondestructive Methods of Rating Materials | 1-129 |
| Optimizing NDI Sensitivity, by Duane P. Johnson | 4-64 |
| Selecting Chemical Analysis Methods, by Vernon Coutu and David Krashes | 4-35 |
| Titanium alloys | |
| A New Cost-Effective Titanium Alloy With High Fracture Toughness, by R. G. Berryman, J. C. Chesnutt and F. H. Froes | 8-40 |
| Properties of Alloys for Low-Temperature and Cryogenic Service | 1-92 |
| Tool steels | |
| Classification and Selection of Tool Steels | 1-53 |
| Optimizing Tempering Time for High-Speed Steels, by Bjorn Fredriksson | 3-50 |
| Special (Nonstandard) Tool Steels | 5-56 |
| Trucks | |
| Fatigue Performance of Aluminum Die Forgings for Trucks, by Neal L. Person | 8-51 |
| Tungsten alloys | |
| Composition and Properties of Representative Refractory Metal Alloys | 1-97 |
| Valves | |
| Materials Engineering for Valves, by Harry Schwartzbart and William C. Banks | 6-66 |
| Wear | |
| Iron-Chromium-Carbon Hardfacing With the Bulkweld Process, by R. F. Arnoldy and G. H. Reynolds | 6-31 |
| Metallurgical Factors Affecting Wear Resistance of Metals, by K. J. Bhansali and W. L. Silence | 6-38 |
| Welding and Joining | |
| Constitution Diagrams for Stainless Steel Weld Metal | 1-161 |
| Current AWS-AISC Allowables for Weld Metal | 1-168 |
| High-Frequency Welding of HSLA Steel Structural, by Humfrey N. Udall and John T. Berry | 3-27 |
| Iron-Chromium-Carbon Hardfacing With the Bulkweld Process, by R. F. Arnoldy and G. H. Reynolds | 6-31 |
| Standard Brazing Alloys: Compositions, Characteristics, Uses | 1-170 |
| Welding electrodes | |
| A Continuous Casting Process for Cobalt Hardfacing Weld Rod, by John B. Gullon | 6-51 |
| Composition and Mechanical Property Requirements for Covered Stainless Steel Electrodes | 1-166 |
| Selecting Arc Welding Electrodes for Mild and Low-Alloy Steels | 1-163 |

AUTHOR INDEX

| | |
|-------------------------|------------------------------------|
| Adams, John S. | 3-39 |
| Arnoldy, R. F. | 6-31 |
| Baker, Hugh | 4-52 |
| Banks, William C. | 6-66 |
| Baxter, Donald F. Jr. | 3-44, 8-32 |
| Berry, John T. | 3-27 |
| Berryman, R.G. | 8-40 |
| Boyer, Howard E. | 6-36 |
| Chandler, Harry E. | 2-5, 3-5, 4-5, 5-5, 6-5, 5-38, 8-5 |
| Chesnutt, J.D. | 8-40 |
| Conybear, James | 6-61 |
| Coutu, Vernon | 4-35 |
| Fredriksson, Bjorn | 3-50 |
| Freeman, William R. Jr. | 3-33 |
| Froes, F.H. | 8-40 |
| Glover, Douglas | 3-39 |
| Graham J.D. | 8-56 |
| Gray, Allen G. | 2-21, 3-23, 4-29, 5-35, 6-29, 8-27 |
| Gullon, John B. | 6-61 |
| Hurlich, Abraham | 5-H1 |
| Johnson, Duane P. | 4-64 |
| Krashes, David | 4-35 |
| Mac Nab, A. J. | 6-44 |
| Marston, Theodore U. | 2-25 |
| Mesko, John E. | 2-30 |
| Nelson, James A. | 4-57 |
| Peckner, Donald | 4-42 |
| Person, Neal L. | 8-51 |
| Pettit, Donald E. | 8-28 |
| Pulaski, James | 4-32 |
| Reynolds, G. H. | 6-31 |
| Rhines, Frederick N. | 3-60, 4-47 |
| Rockwell, Elton N. | 4-61 |
| Schwartzbart, Harry | 6-66 |
| Simmons, Harold E. | 4-38 |
| Smith, Richard E. | 2-42 |
| Titus, Wallace J. | 6-61 |
| Udall, Humfrey N. | 3-27 |
| Van Orden, Jerold M. | 8-28 |